

March 14, 2012

Comments on the Draft Remedial Alternatives Memorandum, San Jacinto River Waste Pits Superfund Site (January 2012)

On behalf of the Port of Houston Authority (PHA), HDR has reviewed the Draft Remedial Alternatives Memorandum and submits the following comments.

Section	Page	Line	Comment
1.4	4	bottom	Refers to remedies in EPA Perimeter area, but the remedy may go beyond (although at p.5 the RAM notes that remedial alternatives are not yet developed for the area south of I-10). EPA should direct respondents to include possibility of remediating beyond Site Perimeter if needed.
2.1.2.1	9	3	Reference is made to current uses, citing a depth of 12 ft, but uses by shoreline developments, construction and maintenance work and PHA development plans may require remedial planning for deeper depths in the future.
2.2.1	10	21	The navigation section should address the probable future navigational needs for the area, as the River uses change and riverfront property is redeveloped.
2.2.4	15	7	Reference to PHA regulation of uses "as it sees fit" should be revised to say, "consistent with its authority and responsibilities."
2.2.5	15	9	EPA should direct the respondents to consider remedies that would allow lifting the ban on harvesting shellfish, and consistent with various CWA requirements and objectives.

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2.2.5	15	19	Recreational uses of the site vicinity should discuss "fishable/swimmable" required objectives of the CWA, and TCEQ goals and standards. EPA should direct the respondents to address recreational uses such as water skiing, use of personal water craft, bird watching, walking, jogging, boating/kayaking, as well as fishing. A map extending at least a mile upstream and downstream from the EPA Site Perimeter is needed to show shoreline access locations (including those presently fenced) where public, private or trespassers may access the shoreline. It should include areas south of I-10 such as the residential area shown on Figure 2-6.
2.4.1	25	10	Based on these facts, the risk assessment should consider that under north wind conditions, persons accessing the shoreline may be exposed to sediment that is normally under deeper water.
2.4.2	27	General	When considering erosion, respondents must include analyses of 1) Subsidence 2) Sea level Rise and 3) Potential for Channel to Meander. The current navigation channel is self maintaining, so the vessels use the existing channel thalweg. There is potential for this channel to migrate in the future.
2.4.3	27	General	The assumption of long-term sediment estimates need to take into consideration limited sediment sources due to upstream dam and items listed in comment above. Land use restrictions, discharge limitations, storm water permitting and other regulatory developments may reduce future sediment loads to the River, and, therefore, the possibility of sedimentation mitigating the risks of contaminated sediments.
3.2	31	26	RAO 1 should be modified to include the area south of I-10.
3.2	32	30	The report should note that achieving RAO1 is contingent on continuing and reliable maintenance per the terms of the TCRA.

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3.3	33	21	An additional RAO is required for remediating upland areas affected by paper mill wastes to appropriate cleanup levels to reduce human exposures to Site-derived dioxins and furans from direct contact with soils.
3.4.1	34	23	Samples from 6 inches alone are not sufficient. At many locations the 0-1 ft sample far exceeds the concentration in the 0-6 in sample. This indicates that the 6 in sample may not be representative, or at least, there are only 6 in of less contaminated cover over more contaminated sediment. Such thin cover is not sufficient to protect against exposure of burrowing biota, or after sediment disturbance, or exposure of humans accessing the area.
3.4.3	36	2	The lowest concentration evaluated was 10 ppt, yet the EPA 2009 soil guidance for dioxins cites a residential PRG of 3.7 ppt. The Thiessen polygons should be extended outward to include areas with this level of contamination for analysis purposes. If site conditions prevent such analyses, some similar level such as 5 ppt should be analyzed. The matrix of concentrations versus polygon areas must be provided for stakeholders to adequately review the RAM.

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3.4.3	36	4	<p>Use of the term "RAL" is very misleading. While the analyses for SWACs down to 20 ppt are shown on Figure 3-2, these are not RALs. For each scenario, as shown in chapter 5, concentrations much higher than the SWAC remain after the remediation under evaluation. The flatness of the curve near an SAC of 7 ppt arises from the choice of 7 ppt as the assumed post-remediated concentration. If it were assumed to be 2 ppt, the graph would asymptotically approach 2 ppt rather than 7 ppt. The apparent contradiction between RAL and SWAC arises from the fact that the SWAC is the <u>averaged</u> remaining concentration over the entire RIFS area (with a number of assumptions) after the remediation of certain areas is performed. For example, many areas with surface concentrations above 20 ppt would remain unremediated if the SWAC of 20 ppt were implemented. This is because all remediated areas are assumed to reach 7 ppt, and, of course, unremediated areas remain as measured (in the upper 6 inches). The areas with surface sediment concentrations below 20 ppt allow the respondents to leave areas with contamination above 20 ppt in place, in proportion to unremediated areas and concentrations. The presentation must instead include the effect of choosing different RALs versus areas remediated to fairly portray alternative remedial options.</p>
3.4.3	36	5	<p>The description of the SWAC analysis presumptively assumes that remediating 6 inches of contamination "eliminates the exposure pathway". As will undoubtedly be shown in the Risk Assessment, and with review of the Fate and Transport Report, many exposure pathways may remain from deeper sediment contamination.</p>
3.4.3	36	9	<p>Prior comments address the inadequacy of 7 ppt as a reference envelope value. EPA (2009) use of 3.7 ppt as a soil interim cleanup level further supports that 7 ppt may not be appropriate. Furthermore, the residual concentration after remediation may be different from the PRG or the 7 ppt cited by responding parties. The post-remediation levels must be defined and supported quantitatively.</p>

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3.4.3	36	10	How were pre vs. post remediation concentrations used in the SWAC? Pre and post remediation concentrations do not appear in equation 3-1 for the SWAC.
3.4.3	36	22	Figure 3-2 shows the curve from the condition prior to the TCRA, an irrelevant condition to the RAM. The graph should present SWACs from the present condition, down to the RAL of 3.7 ppt. No "knee" would appear on such a presentation, and that graphic would more clearly illustrate the incremental benefit of each lower RAL. It should be noted that the lowest, most conservative RAL evaluated has an area of only about 5% of the EPA designated Site. EPA should require the analysis and figure to be revised.
3.5	37	14	SMAs are helpful, although their criteria will be subject to modifications during the FS. The ecological and human uses of the SMAs should be presented.
3.6	38	12	While a 100 year storm design basis sounds conservative, when accumulated over the 30 yr standard design life of CERCLA remedies, it has a roughly 30% likelihood to be exceeded at least once. If the result of exceeding that design basis is an uncontrolled release, or other significant consequence, the design should be more conservative. EPA should require respondents to address sustainability (long term effectiveness) of any remedy evaluated, including changes in land use, water use, sea level change and other changes.
3.6	38	18	The described analyses need to examine areas of potential erosion under a greater variety of flow conditions, prop wash, and sediment cohesion relative to the PRGs versus concentration profiles.
3.7	39	1	EPA 2009 Interim Guidance on Dioxins in Soil is an ARAR, or a least a TBC. Other recent developments in dioxin guidance and interpretations need to be summarized, so remedial decisions will be in the context of current guidance and understanding.
4	40	General	All alternative analyses should include discussion of impacts to future development to include potential channel improvements and upland development.
4	40	General	Potential alternatives need to include discussion of sea level rise and continued subsidence.

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4	40	General	Include discussion of containing all material removed in original footprint of impacted site.
4	41	5	Monitored Natural Remediation should be a subset of "Institutional Controls," because both are accomplished without the use of any remedial measures or technologies. EMNR is part of "in situ containment" as it covers or caps the contaminated sediment.
4.2.1	45	2	Is Table 4-1 the same as Table 4-1 in the Appendix? Designation is not clear.
4.2.2	46	Table 4-2	San Jacinto River is not a federal authorized channel. It is a self-maintaining channel with limiting depths of approximately 13 ft. It does not have deep draft vessel calling on the local industry.
4.2.2	46	Table 4-2	Fixed structures areas require discussion of contaminant levels and possible remediation. They need to be considered if any changes in bed elevations are proposed upstream or downstream, as any contaminated sediment under the fixed structures would then be subject to release by erosion. Each SMA deserves habitat comments and cross references to site conditions. The existing recreational docking facilities north of the I-10 bridge should be preserved and its use evaluated by the Risk Assessment, consistent with the recreational use designation of the River. Additional uses and restrictions for SMAs should be noted, even at this screening stage of the RAM.
4.3	47	4	One area south of I-10 is labeled residential. Other areas throughout the Site and vicinity are Vacant Developable, Undevelopable, Government /Medical/Education, Parks/Open Spaces, Unknown or undeveloped and should not be presumed to be industrial use now or in the future. Shorelines of all areas are likely to have public access.

Section	Page	Line	Comment
4.3	47	16	What maintenance is planned for Area 3, what use will evolve there and how should that use be protected?
4.3	47	24	How is the production and migration of additional shallow contaminated groundwater to be controlled? This may require a local remedy.
4.4.1.2	49	12	In "Effectiveness" the respondents should note that institutional controls are only effective if they are enforced and publicized, maintaining signs, public notices and information updates. Institutional controls do not advance the best usage requirements of the CWA.
4.4.1.4	50	Table 4-3	Effectiveness of institutional controls should be "Low" not "Moderate" because the controls mitigate the risk by compromising access and other uses of water, land and biotic resources. Institutional controls are not a reliable permanent solution for the persistent contaminants of this Site.
4.4.2.1	51	15	EMNR with sediment cover must meet the same ARARs as the capping alternatives.
4.4.2.1	51	25	While MNR and EMNR may be retained for further analyses, they are little more than no action alternatives. They are not effective in the short term, and may not be effective in the long term as the contamination remains in gradually diluted concentrations.

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4.4.2.2	52	12	The use of the term "half-life of concentrations" is technically correct as defined by the responding parties, but misleading and should be changed. The term "half life" is derived from decay of radioisotopes, other materials and organisms that change form so that only half of the initial molecules or organisms remain after the half life. In this case, however, all of the dioxin molecules persist and remain in the sediment. The concentration of molecules is simply diluted to half its initial concentration.
4.4.2.2	52	20	The authors claim "reasonable lower- and upper-bound limits for NSR values within the study area are 0.5 and 1.511 centimeters per year (cm/yr), respectively." The Fate and Transport Report however clearly reports and models that net sedimentation rates (NSR) are highly variable among locations and depend on season, fresh and tidal flow rates, prop disturbance and other factors. The statement should be revised to read "NSR values for some areas of deposition are 0.5 to 1.5 cm/yr." The text in this section which follows should remove all references to "bounds" or "limits" based on these values.
4.4.2.3	54	6	The conceptual monitoring plan should also include monitoring sediment quality and distribution after any major storm event that is likely to alter the sediment distribution of the estuary near the Site.
4.4.2.4	55	Table 4-4	The effectiveness of MNR and EMNR are both "low" as they wait for time to dilute the contaminated sediment. The effectiveness of the dilution and covering of contaminated sediment is comparable to the No Action Alternative. While EMNR is more effective, as it covers the contaminated sediment, it should be considered as a part of the cap technology alternative remedy.
4.4.4.3	65	1	Need discussion on turbidity generated during mixing/auguring process.

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4.4.4.4	65	17	Discussion of erosive forces should include anchoring and vessel grounding. It is routine for barges to pull into the bank even outside of the fleeting areas. Anchors can be deployed for emergency stops or fleeting.
4.4.5.1	68	12	San Jacinto River does not have deep draft container vessels.
4.4.5.2.2	71	7	EM 1110-2-5025 Dredging and Dredged Material Disposal recommends average line discharge concentration of 13 percent by weight. RAM should be revised to be consistent with this document.
4.4.5.2.2	72	7	Guidance provided for Lost Lake by EPA, USACE, and TCEQ is for <u>navigation projects</u> , not sediment clean up projects. In addition, the PHA maintains this site and has specific requirements for sediment quality that includes other COCs that must be tested for and accepted by PHA. The PHA's current position is that it will not accept any materials from the original footprint area of the SJRWP into its dredge disposal sites.
4.4.5.2.2	72	12	The bullets need to be updated when the joint USACE/USCG/TCEQ guidance is revised.
4.4.5.3	73	12	Current channel depths are self-maintaining. Maintenance dredging is not conducted to provide depths within the channel.
4.4.5.5	75	7	Lost Lake is designated for navigation projects, not sediment remediation. It is a poor example for estimated costs.
4.5.1.4	84	7	Lost lake is designated for navigation projects, see above discussions.
4.5.2	85	4	Current guidance for Lost Lake sediments is for navigation projects. See above discussion.
4.5.2.3	87	7	Sediments are not approved to be placed in Lost Lake placement area. It is managed by the PHA, and the PHA's current position is that it will not accept any materials from the original footprint area of the SJRWP into its dredge disposal sites.
4.5.2.4	87	15	The cited cost of \$80-100/ton is excessive, especially compared to other projects' remedial costs, and other dredged materials disposal costs.

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4.5.2.5	88	15	PHA has an extensive analytical list of chemicals that must be evaluated prior to acceptance into one of its sites. It is not clear from the data available at this point that the sediments associated with the Site would be acceptable to the PHA.
4.5.2.6	88	2	Lost Lake currently does not have a monitoring program for contaminated material. It should not be assumed the PHA would accept responsibility for these sediments. The PHA's current position is that it will not accept any materials from the original footprint area of the SJRWP into its dredge disposal sites.
4.6	91	5	Removal by dry excavator should be "retained" ¹
5.1.1	93	10	The volume assumptions for evaluation are excessive. If a 6 in layer removal is planned, the stated assumptions lead to a 4 ft thick assumption for evaluation. Rather, for a 6 in removal, using computer-controlled equipment, a 1 ft depth should be assumed. While a 1.3 factor may be appropriate to estimate sediment volumes for a navigation channel with steep banks, it is not needed for other areas near this Site. A sediment volume based on 1-1.5 ft (rather than 4 ft) should be used for areas that require remediation of surface sediments. Use of 4 ft rather than 1-1.5 ft leads to exaggerated costs.
5.1.2	93	22	MNR should be combined with institutional controls. EMNR should be combined with cap technologies, as noted above.
5.1.2	94	3	In shallow areas, even a thin cap may significantly alter the flood elevations and current velocities in the remaining cross section.
5.1.3	94	26	While a 6 in sample was only lightly contaminated at SJNE026, the presence of much higher levels of contamination (71, 48, 35, and 13 ppt TEQ) to 4 ft depth should require that this location be evaluated in the FS and remediated.
5.1.3	96	Table 5-1	Location SJNE026 should be considered similar to its neighbor location, SJNE032, for the same remedial alternatives.

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5.1.4	96	General	The TCRA should continue to be monitored, and additional armor and protective soils should be added according to the parcel's use and accessibility. Areas of perched contaminated ground water should be remediated to reduce infiltration and to prevent groundwater migration into adjacent surface waters.
5.1.5	98	General	The technology summary should consider one or more technologies that would function most effectively in this environment for these site conditions. A hydraulic dredge with high efficiency for removal and capture of fine-grained sediment should be considered. Rather than excluding shallow and intertidal waters as "infeasible", equipment that could remediate these areas should be included. * (See Notes at end of comments) These areas may pose high risks to trespassers and aquatic biota.
5.1.5.1	98	14	The following statements are incorrect and should be revised. "Natural recovery is an ongoing process occurring at the Site. As such, MNR is a technology that is applicable for all areas of the Site and is not constrained by SMA type." The MNR evaluated in this RAM and described in the Fate and Transport Report is premised on natural deposition of less contaminated sediment, followed by mixing in a layer. It is clearly more relevant to locations where there is greater deposition and is not applicable to areas with erosion (identified in the F&T Report). It is also more effective where greater depths of mixing occur. The statement should be removed.
5.1.5.2	100	4	Near shore areas can be reached with various types of equipment, or by working with the tides. Remediation of shallow areas is an essential element of the FS.

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5.2	100	General	<p>The section does not develop alternatives with a sufficient range of effectiveness and RALs to address the FS criteria. Specifically, long term effectiveness; reduction of toxicity, mobility, or volume; short-term effectiveness; ability to implement; as well as cost, state acceptance, and community acceptance. Alternatives should include a range of RALs for ecological and human health protection ranging from 5 to 50 ppt in surface sediment. At least two combinations of sediment depths and RALs should be included in subsurface remediation components in the FS. Capping with various cover materials (e.g. EMNR, armor, and coarse grained sediment) should be considered for various areas to be capped. It is likely feasible and requires evaluation in at least a few of the SMAs. Removal options should include specialized equipment for remediating shallow areas and fine-grained sediment.* (See Notes at end of comments)</p>
5.2.1	101	General	<p>The definition provided for NFA exactly fits the MNR discussed in this RAM. MNR should be evaluated within the NFA alternative.</p>
5.2.3	101	General	<p>How can a SWAC of 12 ppt only include the TCRA for Alternative 2? The secret is in the SWAC calculation, as commented on above from page 36. These sections should be presented as alternative RALs. The RAL for this alternative appears from Figure 5-1 to be approximately 200 ppt, or perhaps less? The matrix of concentrations versus polygon areas must be provided to permit a meaningful review.</p>


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5.2.4	102	General	Why does this alternative (Alternative 3) exclude NS and ST areas? Because they did not fall into the objective analyses of SWACs or because they were excluded on accessibility grounds or other bases? What is the RAL? The hypothetical volumes and areas are not supported by the level of detail and analysis in this RAM and such details should be deleted from the RAM. Additional details and assumptions will need to be developed and supported in the FS.
5.2.5	103	7	No adequate justification is provided for the assumed scope for this alternative. The assumptions for excluding remediation of some subsurface contamination are not supported. What is the RAL?
6.1	108	General	As noted above, media-specific remediation should be evaluated for perched groundwater in the TCRA area, for soil where concentrations and the risk assessment indicate a need, and in the TCRA area if monitoring indicates a need or additional surface protection is indicated by the conditions or risk assessment.
6.2	109	General	All references to cleanup levels in SWACs must report associated RALs, the standard basis for understanding response actions.
6.2	109	22	The sentence describing the remedy selection criteria is incorrect and should be deleted. The CERCLA criteria for FS evaluations and remedy selection must be cited.
6.2	109	27	The natural processes do not predict the cited improvements in sediment contaminant levels as commented above. Some areas have no deposition or erosion, leaving current sediment contaminant levels to persist well beyond 10 years.

***Notes:** The RAM (and FS) should include discussion of additional technologies. First, hydraulic technologies can be operated and adapted to selectively collect fine sediments, the most contaminated materials. Such methods of operation and technologies should be evaluated. Methods of operation can maximize the effectiveness of dredging and minimize the volume of disposed material. Second, it is stated in the RAM that shallow areas cannot be dredged feasibly. While special controls and equipment

are needed in shallow areas, technologies are readily available to remediate such areas and should be included in the RAM and FS.

Any questions concerning these comments should be communicated to Linda Henry, Port of Houston Authority.

Sincerely,



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